

CLAIMS

1. A plasma generating electrode comprising:

two or more electrodes disposed to face each other, and

5 holding members for holding the electrodes at a predetermined interval,

and capable of generating plasma by applying voltage between the electrodes;

wherein at least one of the electrodes facing each other has a plate-shaped ceramic body serving as a dielectric body and a conductive film disposed inside the ceramic body, and

10 the holding members fix the opposite side end portions (fixed end portions) of the electrodes facing each other in the state of a cantilever in such a condition that the electrodes are held by holding members in the state of cantilevers of the different directions alternately at a predetermined interval as a whole.

15 2. A plasma generating electrode according to Claim 1, wherein the holding members have a large number of first groove portions to insert free end portions opposite to fixed end portions of the electrodes therein with a predetermined gap on each surface opposing to the free end portions.

20 3. A plasma generating electrode according to Claim 2, wherein the holding members each comprises a unitary first comb-shaped member having the first grooves as comb teeth and a unitary second comb-shaped member having a second grooves as comb teeth, the first comb-shaped member and the second comb-shaped member having shapes complementary to each other; the free end portions of the electrodes are inserted into the
25 first grooves of the first comb-shaped member; and the fixed end portions of the electrodes are fixed to the second grooves of the second comb-shaped member in the state of a cantilever.

4. A plasma generating electrode according to Claim 3, wherein each of the fixed end portions of the electrodes is fixed, with an adhesive agent, to each of the second grooves of the second comb-shaped member in the state of a cantilever.
- 5 5. A plasma generating electrode according to any one of Claims 1 to 4, which further comprises a connection terminal for electrical connection to the fixed end portions of the electrodes.
6. A plasma generating electrode according to Claim 5, wherein a main component of
10 the connection terminal is metal having a thermal expansion coefficient of $7 \times 10^{-6} (1/K)$ at 0 to 600°C or less.
7. A plasma generating electrode according to Claim 5 or 6, wherein the connection terminal is connected to the fixed end portions of the electrodes by welding, brazing, or
15 diffusion bonding.
8. A plasma generating electrode according to Claim 5, wherein the connection terminal is formed by plating of a conductive layer on the fixed end portions of the electrodes.
9. A plasma reactor comprising a plasma generating electrode according to any one of
20 Claims 1 to 8 and a case body having a passage of gas containing a predetermined component, and being capable of making the predetermined component contained in the gas react with plasma generated by the plasma generating electrode when the gas is introduced into the case body.
- 25 10. A plasma reactor according to Claim 9, which further comprises a honeycomb structure having a plurality of cells separated by partition walls and disposed on upstream side of the plasma generating electrode in the passage of the case body.